5-Hydroxytryptamine in Peripheral Reactions

Edited by F. de Clerck and P.M. Vanhoutte

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Research into 5-hydroxytryptamine (5-HT) is enjoying something of a revival after being eclipsed by the more glamorous mediators of the seventies like prostaglandins and leukotrienes. To some extent the relative loss of interest in this substance was because of frustrations felt in trying (elusively) to define a few simple functions for it. For example, what does it do in gut enterochromaffin cells and platelets? What receptors mediate its actions? Another problem is that pharmacologically speaking it is often tiresome to work with because it often exerts both direct and indirect (neurally-mediated) actions, many of which show tachyphylaxis on repeated administration.

Thus it is pleasant to say that good progress is now being made. This book helps to explain why. A major thrust has come from the elegant and systematic work in the Janssen Research Laboratories in Belgium. They have developed a novel 5-HT antagonist (ketanserin), which has enabled the definition of the 5-HT_2 receptor subtype and which is a promising antihypertensive agent. Indeed, this drug is really the focus of the present volume which reports the proceedings of a mini-symposium organised by the Janssen group in March 1981. Thus the information herein has already to some extent been superseded by events – but no matter as it is very timely to have a good collection of articles on this fascinating amine. Indeed, I do not recall seeing any other recent compilation on this important and (re-)emerging topic.

The individual reviews are well written, although generally not particularly comprehensive, nicely presented (lots of good micrographs in the first part which deals with subcellular localisation) and adequately referenced. The literature citations cover 1981, with many 1982 articles mentioned as in press.

Perhaps I can very briefly indicate the scope of this attractive book. In four parts, the first deals with 5-HT storage, uptake and turnover, emphasising gut enterochromaffin cells and including some of the interesting results of the Scandinavian school which suggest a role for 5-HT in the functional hyperaemia during digestion action. A brief article deals with immunohistochemical localisation in human tissues: for example there is evidence of co-storage with the bronchoconstrictor bombesin (in lung) and other peptides. Other articles deal with endothelial cell metabolism and platelet uptake mechanisms. The second and third sub-sections deal with 5-HT as an amplifier of platelet aggregation and vascular contractile mechanisms, together with consideration of its possible aetiological roles in myeloproliferative disorders, malignant hyperthermia, Duchenne muscular dystrophy, shock and, importantly, hypertension.

Vanhoutte's theories about 5-HT and high blood pressure have been well-aired elsewhere, but here they are accompanied (in the final part) by several persuasive clinical studies in man showing ketanserin's anti-hypertensive efficacy. However, there is not any serious consideration of the controversy (raised by other research groups) that this drug may also interact with α-adrenoceptors. Another omission which was a little disappointing, although reasonable in view of the title, was of ketanserin binding to brain membranes. After all, the definition of the 5-HT_1 and 5-HT_2 subtypes came from studies using brain membranes and has led to some interesting if provocative ideas about 5-HT-dependent mechanisms of CNS-active drugs.

In summary, I warmly recommend this excellent little book, although at present exchange rates it does seem a shade expensive at about £30.

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